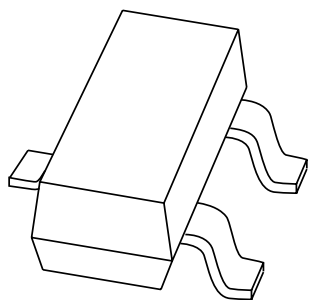


DATA SHEET



BAS29; BAS31; BAS35 General purpose controlled avalanche (double) diodes

Product specification
Supersedes data of 1999 May 21

2001 Oct 10

General purpose controlled avalanche (double) diodes

BAS29; BAS31; BAS35

FEATURES

- Small plastic SMD package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 90 V
- Repetitive peak reverse voltage: max. 110 V
- Repetitive peak forward current: max. 600 mA
- Repetitive peak reverse current: max. 600 mA.

APPLICATIONS

- General purpose switching in e.g. surface mounted circuits.

DESCRIPTION

General purpose switching diodes fabricated in planar technology, and encapsulated in small rectangular plastic SMD SOT23 packages. The BAS29 consists of a single diode. The BAS31 has two diodes in series. The BAS35 has two diodes with a common anode.

MARKING

TYPE NUMBER	MARKING CODE ⁽¹⁾
BAS29	L20
BAS31	L21 or *V1
BAS35	L22 or *V2

Note

- * = p : Made in Hong Kong.
 * = t : Made in Malaysia.
 * = W : Made in China.

PINNING

PIN	DESCRIPTION		
	BAS29	BAS31	BAS35
1	anode	anode	cathode (k1)
2	not connected	cathode	cathode (k2)
3	cathode	common connection	common anode

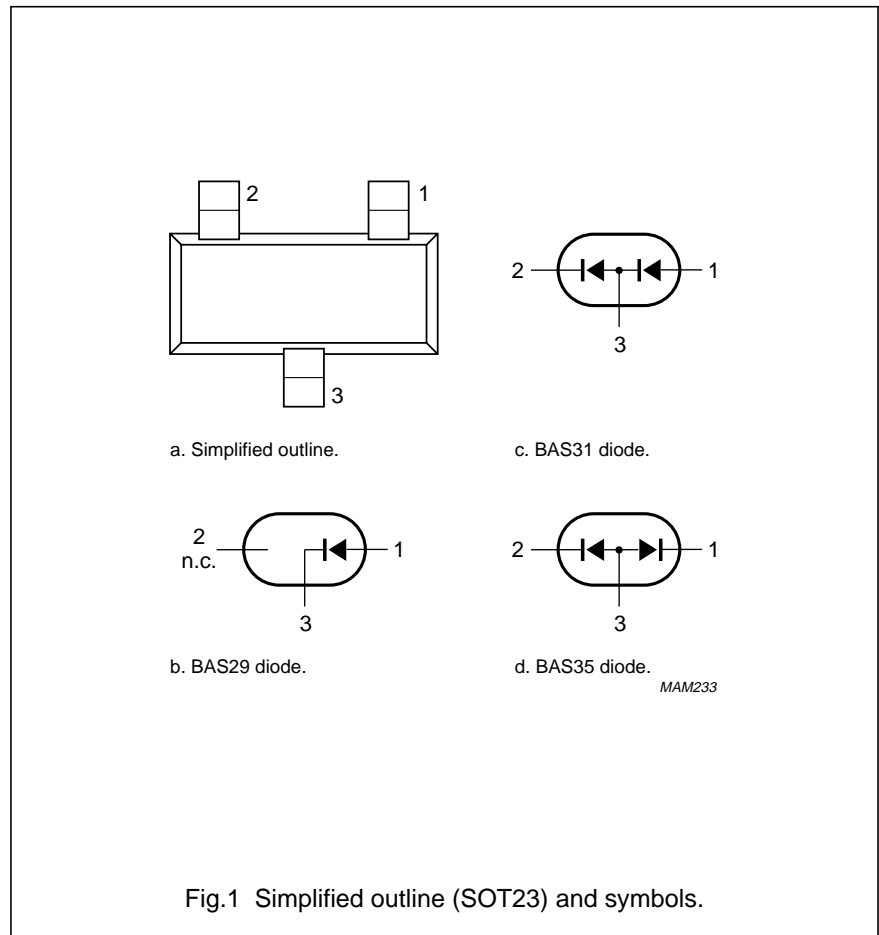


Fig.1 Simplified outline (SOT23) and symbols.

General purpose controlled avalanche (double) diodes

BAS29; BAS31; BAS35

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_{RRM}	repetitive peak reverse voltage		–	110	V
V_R	continuous reverse voltage		–	90	V
I_F	continuous forward current	single diode loaded; see Fig.2; note 1	–	250	mA
		double diode loaded; see Fig.2; note 1	–	150	mA
I_{FRM}	repetitive peak forward current		–	600	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4			
		$t = 1\ \mu\text{s}$	–	10	A
		$t = 100\ \mu\text{s}$	–	4	A
		$t = 1\ \text{s}$	–	0.75	A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$; note 1	–	250	mW
I_{RRM}	repetitive peak reverse current		–	600	mA
E_{RRM}	repetitive peak reverse energy	$t_p \geq 50\ \mu\text{s}$; $f \leq 20\ \text{Hz}$; $T_j = 25\text{ °C}$	–	5	mJ
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C

Note

1. Device mounted on an FR4 printed-circuit board.

General purpose controlled avalanche (double) diodes

BAS29; BAS31; BAS35

ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_F	forward voltage	see Fig.3			
		$I_F = 10\text{ mA}$	–	750	mV
		$I_F = 50\text{ mA}$	–	840	mV
		$I_F = 100\text{ mA}$	–	900	mV
		$I_F = 200\text{ mA}$	–	1	V
		$I_F = 400\text{ mA}$	–	1.25	V
I_R	reverse current	see Fig.5			
		$V_R = 90\text{ V}$	–	100	nA
		$V_R = 90\text{ V}; T_j = 150\text{ °C}$	–	100	μA
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 1\text{ mA}$	120	170	V
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0$; see Fig.6	–	35	pF
t_{rr}	reverse recovery time	when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}$; $R_L = 100\ \Omega$; measured at $I_R = 3\text{ mA}$; see Fig.7	–	50	ns

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		360	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

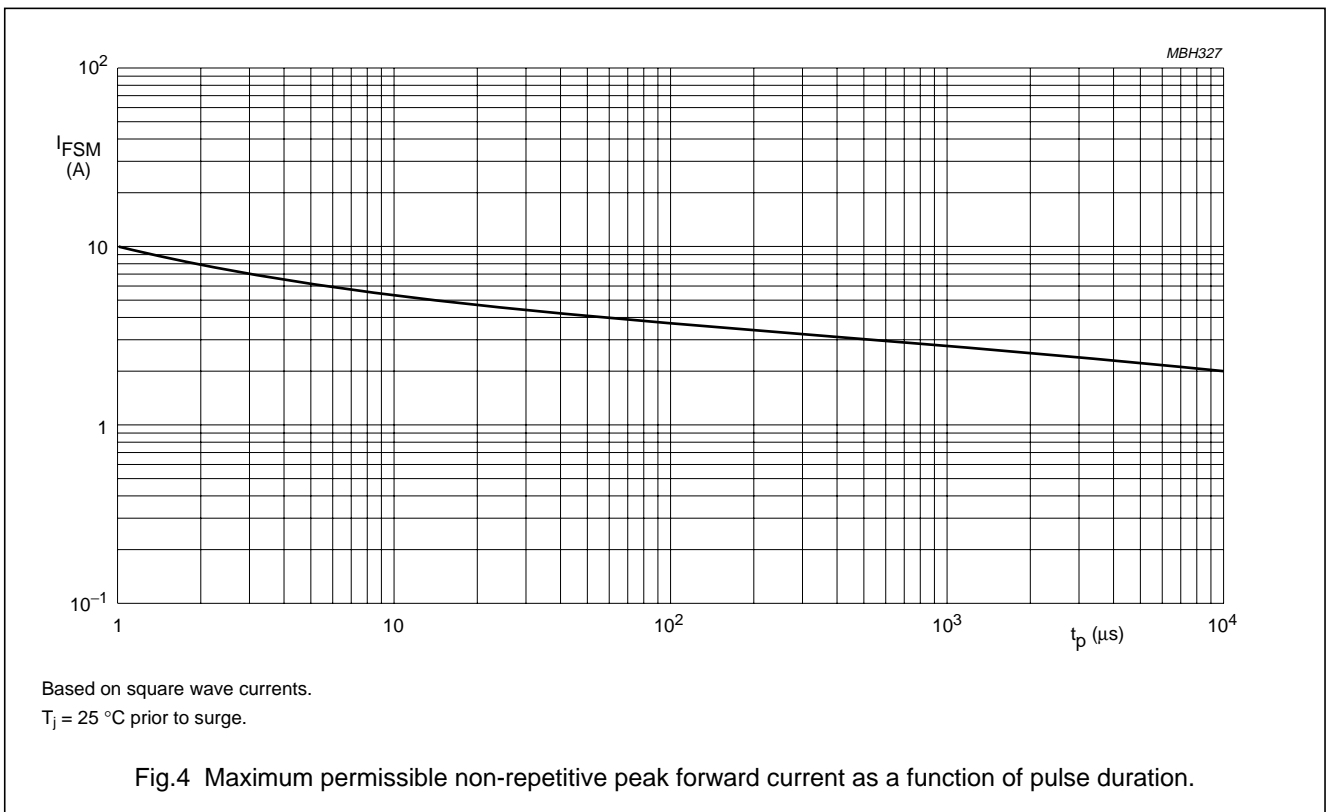
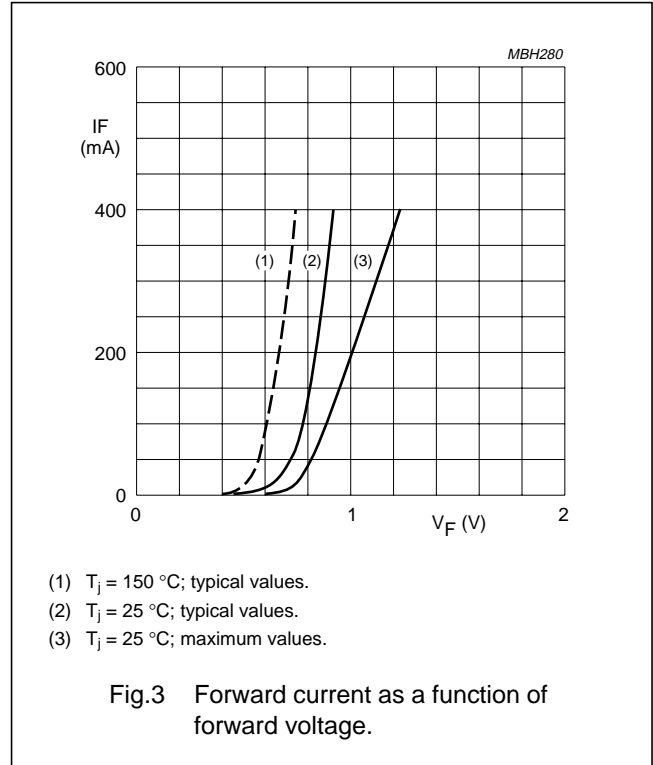
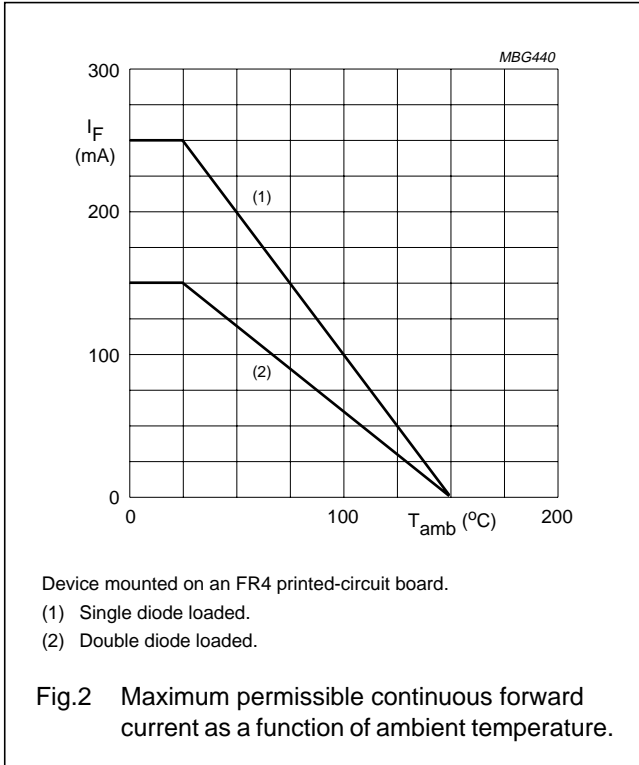
Note

1. Device mounted on an FR4 printed-circuit board.

General purpose controlled avalanche
(double) diodes

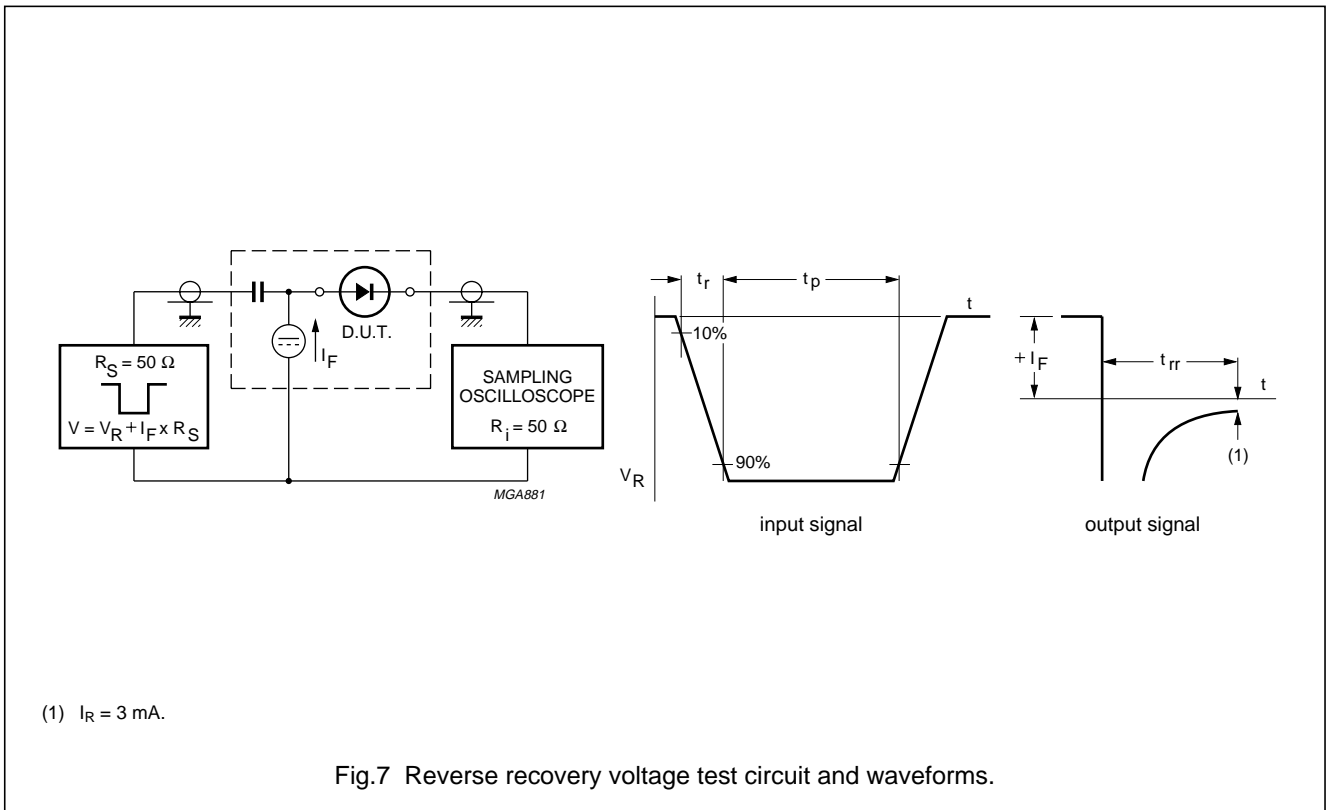
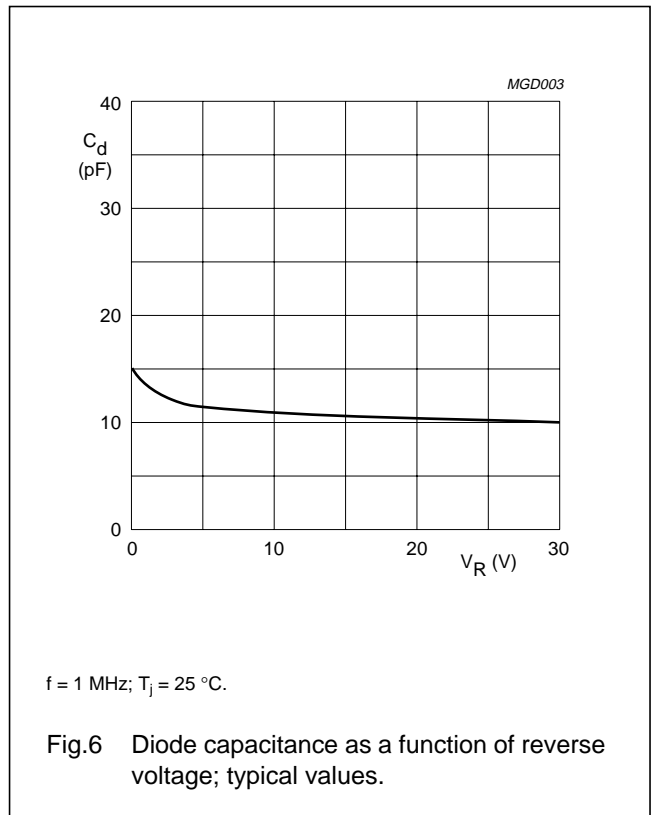
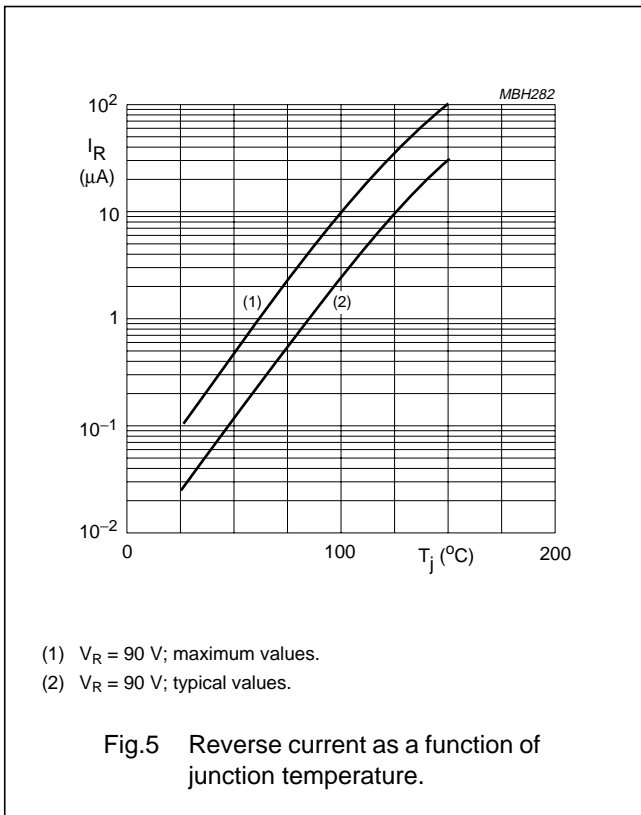
BAS29; BAS31; BAS35

GRAPHICAL DATA



General purpose controlled avalanche
(double) diodes

BAS29; BAS31; BAS35



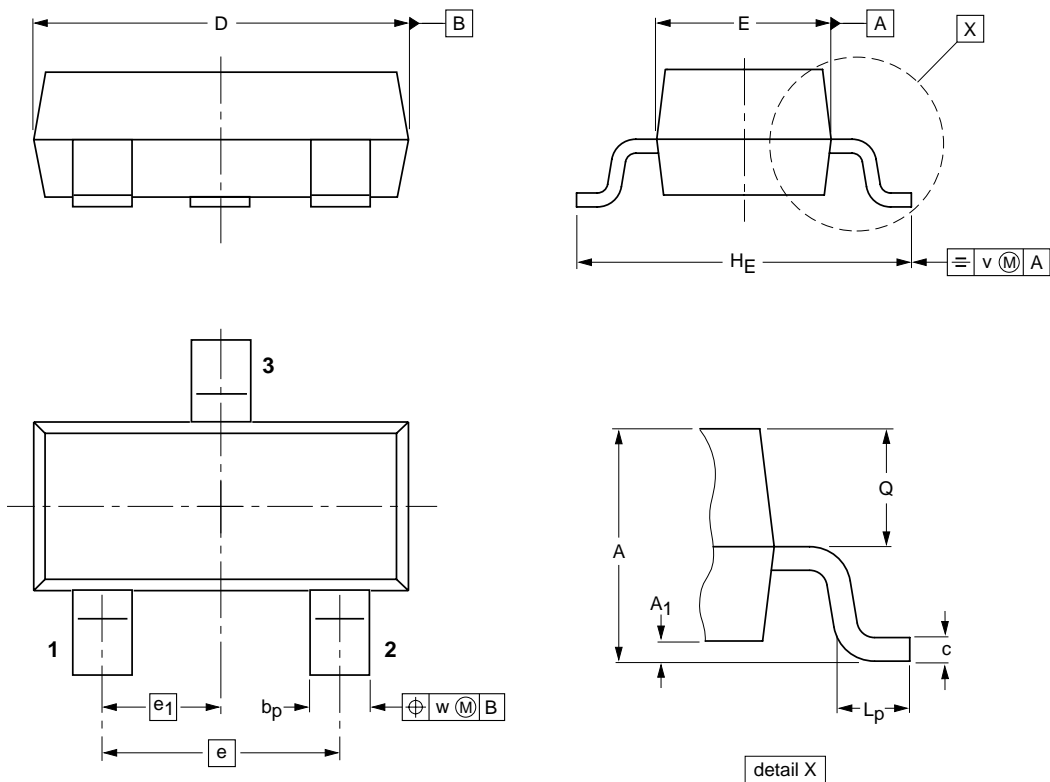
General purpose controlled avalanche
(double) diodes

BAS29; BAS31; BAS35

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOT23		TO-236AB			97-02-28 99-09-13

General purpose controlled avalanche (double) diodes

BAS29; BAS31; BAS35

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DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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(double) diodes

BAS29; BAS31; BAS35

NOTES

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(double) diodes

BAS29; BAS31; BAS35

NOTES

General purpose controlled avalanche
(double) diodes

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NOTES

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